CLAIMS

1. A theft prevention method for a vehicle, allowing that a main switch connected to a battery is turned on to actuate theft prevention means and operation of the theft prevention means is stopped through releasing operation, wherein a battery voltage is read immediately after the main switch is turned on, it is determined whether or not the battery voltage is no larger than a given value after the releasing operation, and a warning is issued if the battery voltage is no larger than the given value.

2. The theft prevention method for a vehicle as set forth in claim 1, wherein the theft prevention means is an immobilizer system for cutting off an ignition unit when the main switch is operated incorrectly.

3. The theft prevention method for a vehicle as set forth in claim 2, wherein the given value is a lowest working voltage allowing release of the immobilizer system plus a given margin.

4. The theft prevention method for a vehicle as set forth in claim 1 or 2, wherein the given value is a lowest working voltage of a starter motor plus a given margin.

5. A theft prevention device for a vehicle having: a theft prevention device main unit connected to a battery through a main switch; a siren for generating a warning sound; an indicator lamp for indicating the operating condition of the theft prevention device; an ignition unit of an engine; means for measuring a battery voltage; main switch-input determination means for determining ON/OFF of the main switch; and a control circuit constituting an immobilizer for controlling the operation of the siren in response to the determination by the main switch-input determination means and stopping operation of the ignition unit, wherein the control circuit is arranged such that a battery voltage is read immediately after the main switch is turned on, it is determined whether or not the battery voltage is no larger than a given value after releasing operation of the immobilizer system, and if the voltage is no larger than the given value, a warning is issued from the siren.

6. A theft prevention method for a motorcycle, using an acceleration sensor for detecting the acceleration in the direction of the X- and/or Y-axis, and determining a theft condition based on differences between sensor outputs X, Y in the directions of X, Y and given reference values Xs, Ys, wherein an average value of the sensor outputs is calculated for a given time B from the moment when a given time A has elapsed since the start of a new theft monitoring condition, and the average value is set as the reference value.

7. The theft prevention method for a motorcycle as set forth in claim 6, wherein the

sensor output is detected at certain periodic intervals, a given number of data pieces detected before an elapse of the given time A are ignored, an average value of a given number of subsequent detection data pieces is set as the reference value, and a theft condition is determined, using the reference value, based on the subsequent detection data.

8. The theft prevention method for a motorcycle as set forth in claim 6 or 7, wherein a theft condition is determined, based on $|X-Xs|+|Y-Ys|$.

9. The theft prevention method for a motorcycle as set forth in claims 6, 7 or 8, wherein the reference value is updated at certain time intervals.

10. A theft prevention device for a motorcycle having: a dual-axis acceleration sensor for detecting an acceleration for each of the X- and Y-axis; sensor-output reading means for reading the output of the acceleration sensor; theft determination means for determining, based on the read sensor output, whether or not there exists a theft condition; and warning means for issuing a warning when it is determined that there exists a theft condition, the theft determination means calculates a resultant operational output value A of sensor outputs of the X- and Y-axis, based on differences between the sensor outputs X, Y of the X- and Y-axis and given reference values Xs, Ys for the respective X- and Y-axes; a theft condition is determined, based on the vibration of the vehicle, if the operational output value A is larger than a given threshold value S; and the theft condition is determined, based on the tilt of the vehicle, if the operational output value A is smaller than the given threshold value S.

11. The theft prevention device for a motorcycle as set forth in claim 10, wherein if the operational output value A is larger than a given threshold value S, when this condition continues for not less than a given time in total, it is determined that there exist a theft condition, and a warning is issued.

12. The theft prevention device for a motorcycle as set forth in claim 10, wherein when the operational output value A is smaller than a given threshold value S, a new average value of the average value of a plurality of former output values and the calculation value used in the previous determination is detected for each of the X- and Y-axis; a resultant tilt determination value D of sensor outputs of the X- and Y-axis is calculated, based on differences between the new average values and given reference values Xs, Ys; and when the tilt determination value D is not smaller than a given threshold value Q, it is determined that there exists a theft condition, and a warning is issued.

13. The theft prevention device for a motorcycle as set forth in claim 10, wherein supposing current output values are represented by X, Y and reference values by Xs, Ys for the X- and Y-axis, the operational output value A is expressed as:

$A=|X-Xs|+|Y-Ys|$.

14. The theft prevention device for a motorcycle as set forth in claim 10, wherein supposing current output values are represented by X, Y and reference values by Xs, Ys for the X- and Y-axis, the operational output value A is expressed as:

$A=\sqrt{\{|X-Xs|2+|Y-Ys|2\}}$.

15. The theft prevention device for a motorcycle as set forth in any one of claims 10-14, wherein the sensor-output reading means reads the sensor output at certain time intervals and stores it in a memory.

16. A theft prevention system for a vehicle, wherein there are provided a first theft prevention device constituted by an immobilizer for checking an ID code of a transponder incorporated in a key and controlling prohibition of engine start and removal of the prohibition, and a second theft prevention device made up of theft detection means for detecting a theft condition and warning means; communication means is provided between the first and the second theft prevention devices; and an operating signal of one theft prevention device is sent to the other theft prevention device to enable the other theft prevention device to operate.

17. The theft prevention system for a vehicle as set forth in claim 16, wherein the operating signal is a canceling signal of theft preventing operation; engine-start-prohibition canceling signal is sent from the first theft prevention device to the second theft prevention device; and alerting operation of the second theft prevention device is canceled, based on the start-prohibition canceling signal.

18. The theft prevention system for a vehicle as set forth in claim 16 or 17, wherein the operating signal is an input detection signal of a main switch.

19. The theft prevention system for a vehicle as set forth in claims 16, 17 or 18, wherein an alerting-operation starting signal is sent from the first theft prevention device to the second theft prevention device a given time after the main switch is turned off.